



NOAA perspective and plans for obs4MIPs

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NOAA/NCDC Plans for Obs4MIPS

- NCDC plans to convert several of our Climate Data Record (CDR) data sets to Obs4MIPS
- Recommendations regarding potential time/space resolutions for model output
- Plans for processing/reprocessing of data sets

NCDC plans to convert several of our Climate Data Record (CDR) data sets to Obs4MIPS

obs4MIPs	CDR
netCDF-3	netCDF-4
CF compliant	ditto
Peer-reviewed, controlled, archived	ditto
One measurement variable per file	No constraint
Variable names prescribed	No constraint
Data types prescribed	No constraint
Dimension order prescribed	No constraint
Time dimension characteristics prescribed	No constraint
Numbers and sizes of files prescribed	No constraint
Variable-level CF attributes prescribed	Smaller set prescribed (many are minimal)
Coordinate variable bounds prescribed	No constraint (some don't have them)
Must have error measures for each value	No constraint (most don't have this)

CDR to Obs4MIPS Issues

- Conversion is (mostly) easy:
 - The Climate Model Output Rewriter (CMOR) library provides C, FORTRAN, and python functions for creating obs4MIPs-compliant files
 - Straightforward to write a general-purpose CDR-to-obs4MIPs converter
- Obs4MIPS should adopt NetCDF-4 in the future for added feature set

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CDR to Obs4MIPS Issues

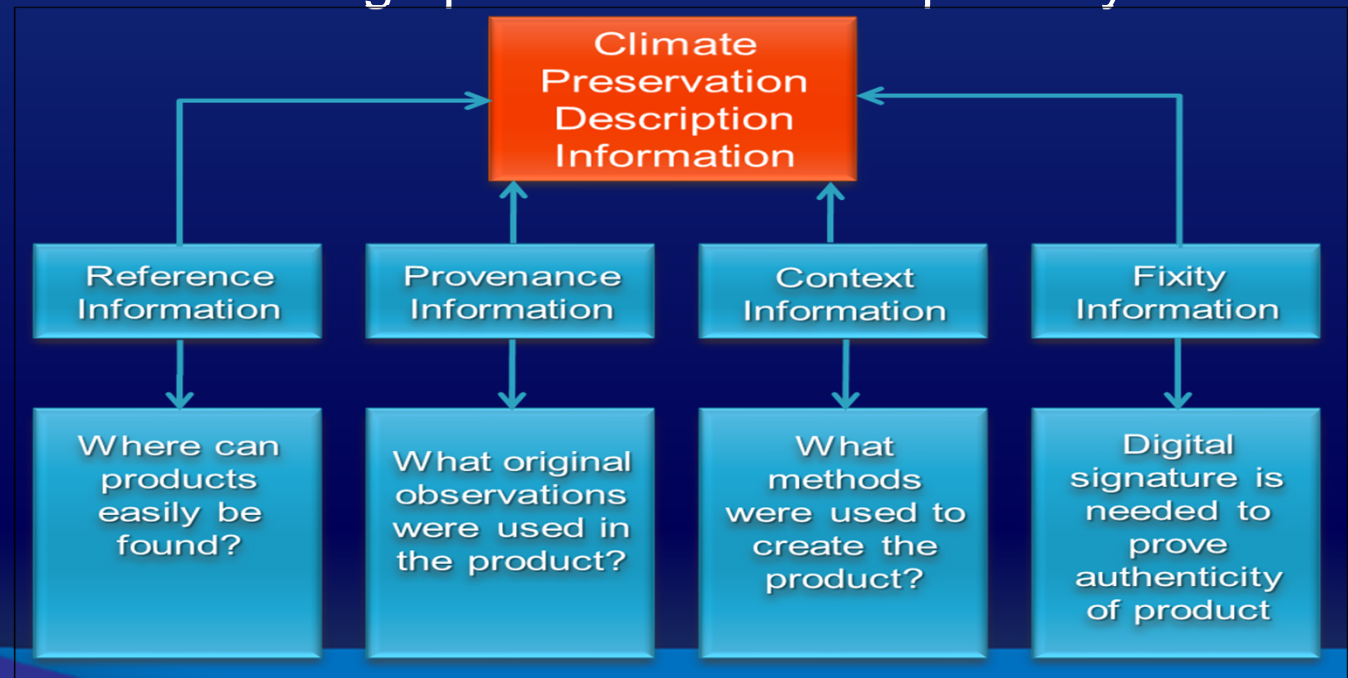
- Many CDRs lack critical information
 - Many CDRs lack variable level attributes that are best defined by the PI
 - Some (many?) CDRs lack coordinate boundary variables
 - Many (most?) CDRs lack error measure variables
- The obs4MIPs standard requires, “no additional processing beyond ... binning and averaging, or interpolation”
- These issues can be addressed...

Recommendations regarding potential time/space resolutions for model output

- Consider what model processes should be studied
 - Diurnal cycle – ISCCP will produce monthly averaged diurnal cycle of clouds
 - Pentad averages – to resolve intraseasonal oscillations, especially MJO
- Consider running atmospheric sounder and imager simulator for multidecadal records from HIRS, MUS, AMSU, and SSMI

Consider Requiring Process Maturity Matrix Evaluation to Documentation

- The Maturity Matrix assess Software Readiness, Metadata, Documentation, Product Validation, Public Access, and Utility on a Maturity on a scale of 1-6 in each area
 - Details can be found in Bates and Privette 2012; DOI :10.1029/2012EO440006
- These attributes monitor process, documentation, and access to CDRs.
 - These are essential in ensuring openness and transparency



Plans for processing/reprocessing of data sets

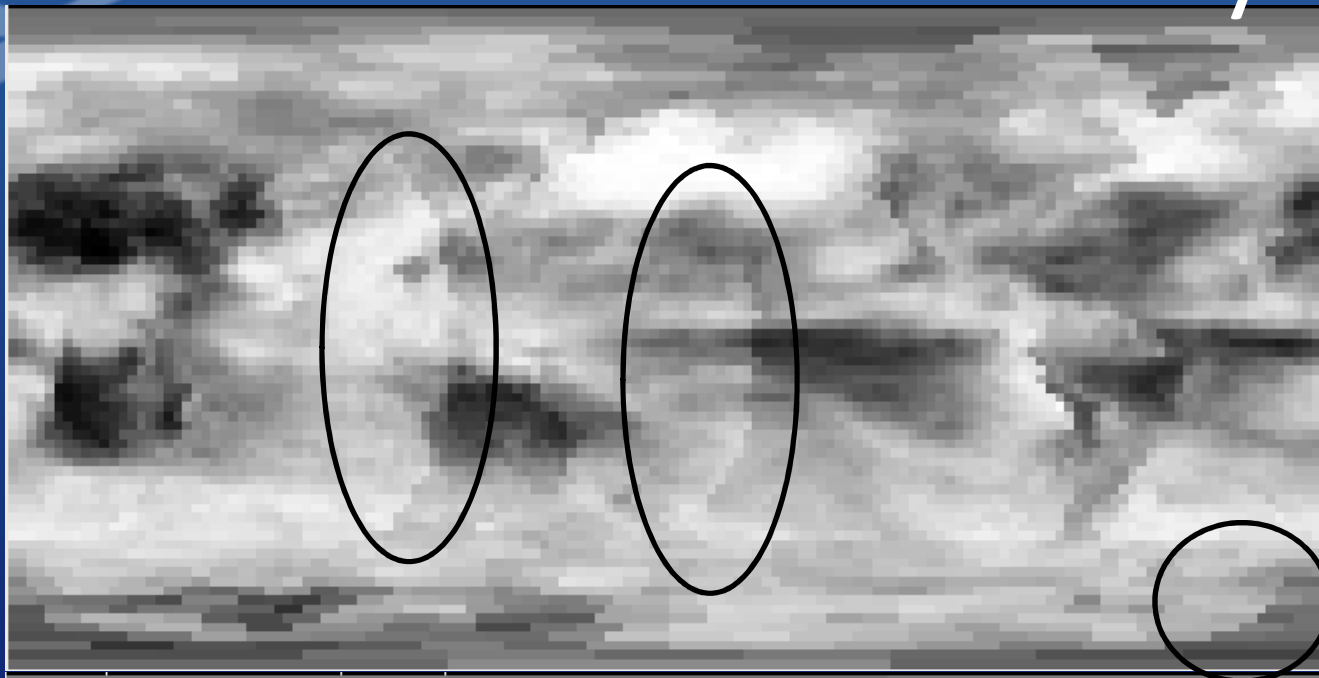
- See www.ncdc.noaa.gov/cdr for details
- CDR data sets for initial use in Obs4MIPs
 - OISST – Optimal interpolation SST
 - GlobalTemp – global in situ surface temperature
 - ISCCP V2 – Full reprocessing of ISCCP including improved physics and higher resolution
 - OLR – HIRS multichannel improves over single window channel



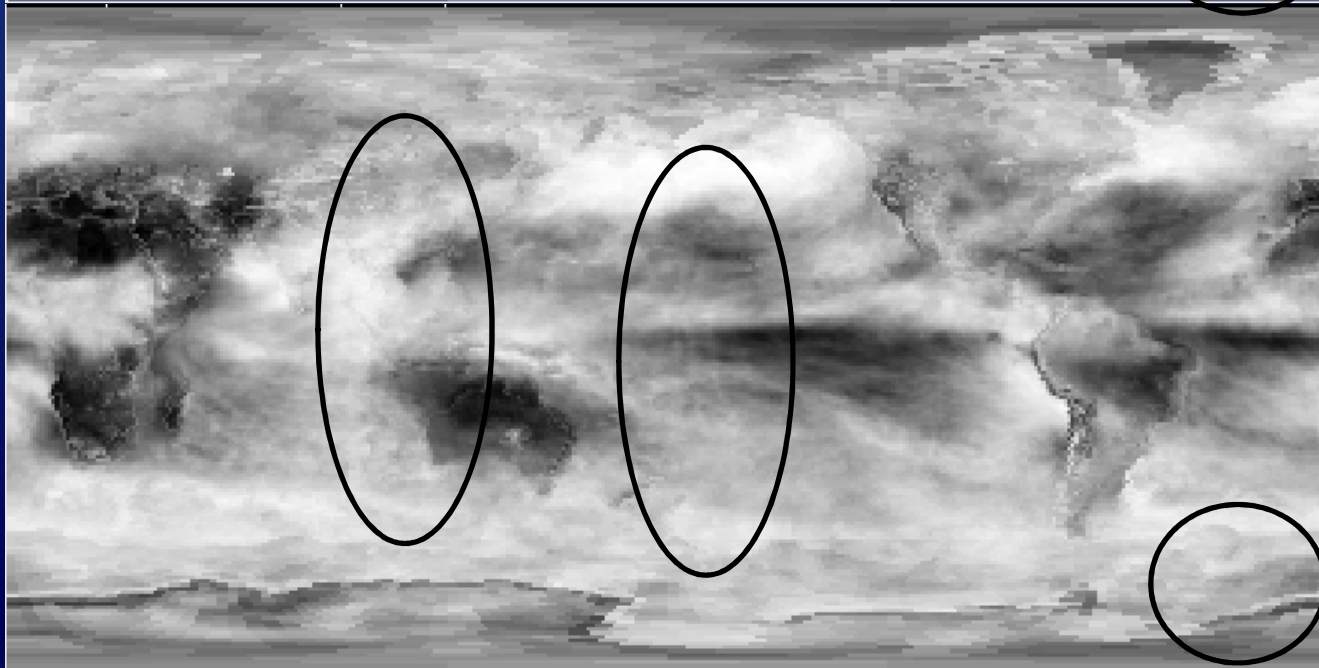
.....Other TBD

Mean Cloud Amount – July 2007

Old ISCCP – 2½ deg



New ISCCP – 1 deg

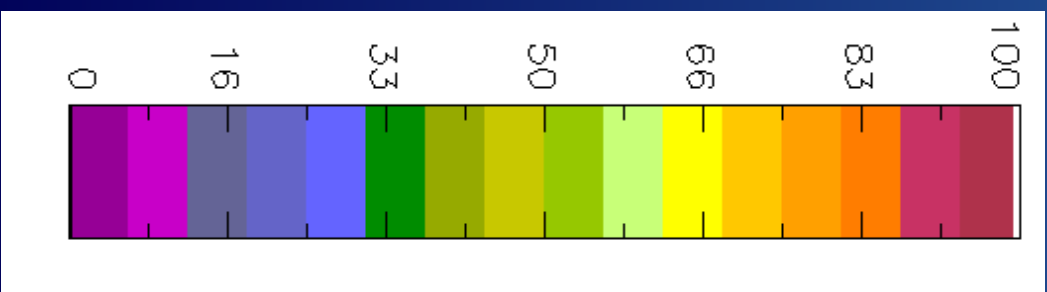
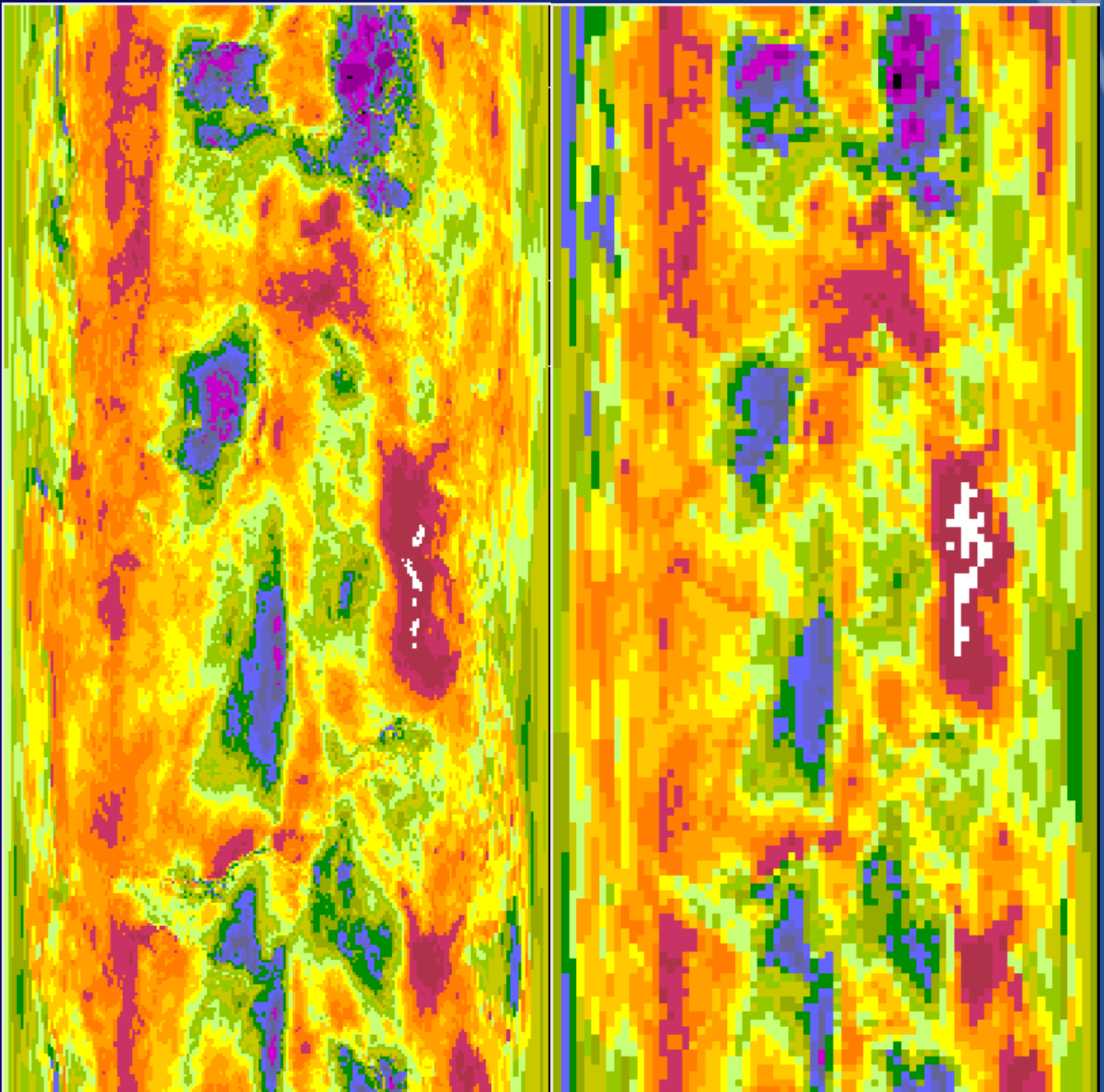


Fewer satellite artifacts
Higher resolution
Produced @ CICS/NCDC!

Mean Cloud Amount – July 2007

Old ISCCP – 2½ deg

New ISCCP – 1 deg





Thanks

Questions?

